Exercise 5: Volume

1. Setting up the server

```
PS C:\Users\whatanicedayiana> <mark>docker</mark> r
                                                                              name apache -p 80:80 httpd:2.4
Unable to find image 'httpd:2.4' locally
2.4: Pulling from library/httpd
69692152171a: Pull complete
7284b4e0cc7b: Pull complete
3678b2d55ccd: Pull complete
aeb67982a725: Pull complete
06954f8169fd: Pull complete
Digest: sha256:48bae0ac5d0d75168f1c1282c0eb21b43302cb1b5c5dc9fa3b4a758ccfb36fe9
Status: Downloaded newer image for httpd:2.4
52b740238ee830ca5cf9ed9480650493c3280e3527ca04c69b58134287de0be5
 S C:\Users\whatanicedayiana> <mark>curl</mark> localhost
StatusCode
StatusDescription : OK
Content
                           : <html><body><h1>It works!</h1></body></html>
                           : HTTP/1.1 200 OK
                             Keep-Alive: timeout=5, max=100
Connection: Keep-Alive
                              Accept-Ranges: bytes
                              Content-Length: 45
                             Content-Type: text/html
Date: Fri, 11 Jun 2021 22:15:45 GMT
ETag: "2d-432a5e4a73a80...
 orms
                           : {}
: {[Keep-Alive, timeout=5, max=100], [Connection, Keep-Alive], [Accept-Ranges, bytes], [Content-Length, 45]...}
 leaders
 [mages
InputFields
                             mshtml.HTMLDocumentClass
Links
ParsedHtml
RawContentLength
```

Fig. 1. Running Apache HTTPD server and query web server for the default page

Fig. 2. Replacing default base html with new index.html

```
PS C:\Users\whatanicedayiana\Documents\CoE1975\ME8_Containerization_and_Docker\5-volumes> <mark>docker</mark> stop apache
 .5 C:\Users\whatanicedayiana\Documents\CoE1975\ME8_Containerization_and_Docker\5-volumes> docker run --rm -d --name apache -p 80:80 httpd:2.4
d29cd71c481606b69d075d072e1721204125515837d6a810701c08a211d5447b
PS C:\Users\whatanicedayiana\Documents\CoE1975\ME8_Containerization_and_Docker\5-volumes> <mark>curl</mark> localhost
StatusCode : 200
StatusDescription : OK
StatusCode
                         : <html><body><h1>It works!</h1></body></html>
 ontent
                        : HTTP/1.1 200 OK
Keep-Alive: timeout=5, max=100
Connection: Keep-Alive
Accept-Ranges: bytes
RawContent
                           Content-Length: 45
Content-Type: text/html
Date: Fri, 11 Jun 2021 22:21:53 GMT
ETag: "2d-432a5e4a73a80...
                            {}
{{Keep-Alive, timeout=5, max=100}, [Connection, Keep-Alive], [Accept-Ranges, bytes], [Content-Length, 45]...}
{}
Forms
Headers
 [mages
[nputFields
 inks
                           mshtml.HTMLDocumentClass
 arsedHtml
awContentLe
```

Fig. 3. Stopping container autoremoves it, so another new container won't have previous changes

2. Managing volumes

```
PS C:\Users\whatanicedayiana\Documents\CoE1975\ME8_Containerization_and_Docker\5-volumes> docker volume 1s
DRIVER VOLUME NAME
PS C:\Users\whatanicedayiana\Documents\CoE1975\ME8_Containerization_and_Docker\5-volumes> docker volume create myvolume
myvolume
PS C:\Users\whatanicedayiana\Documents\CoE1975\ME8_Containerization_and_Docker\5-volumes> docker volume 1s
DRIVER VOLUME NAME
local myvolume
PS C:\Users\whatanicedayiana\Documents\CoE1975\ME8_Containerization_and_Docker\5-volumes> docker volume rm myvolume
myvolume
PS C:\Users\whatanicedayiana\Documents\CoE1975\ME8_Containerization_and_Docker\5-volumes> docker volume 1s
DRIVER VOLUME NAME
```

Fig. 4. Listing, Adding and Removing Volumes

3. Mounting volumes on container

```
PS C:\Users\whatanicedayiana\Documents\CoE1975\ME8_Containerization_and_Docker\5-volumes> <mark>docke</mark>r volume create httpd_htdocs
httpd_htdocs
 PS C:\Users\whatanicedayiana\Doc
/local/apache2/htdocs/ httpd:2.4
                                                cuments\CoE1975\ME8_Containerization_and_Docker\5-volumes> docker run
 Incar/apachez/futuors/ micropic.+4
38dc19e935a11d0a52a0fe07ed056565779d803f45f4959f911bc16e3f4a5e24a
PS C:\Users\whatanicedayiana\Documents\CoE197S\ME8_Containerization_and_Docker\5-volumes> docker cp index.html apache:/usr/local/apache2/htdocs/
PS C:\Users\whatanicedayiana\Documents\CoE197S\ME8_containerization_and_Docker\5-volumes> curl localhost_
StatusCode
StatusBescription : OK
Content : <html><body><h1>It works in Docker!</h1></body></html>
                           : HTTP/1.1 200 OK
Keep-Alive: timeout=5, max=100
Connection: Keep-Alive
RawContent
                              Connection: Keep-Alive
Accept-Ranges: bytes
Content-Length: 56
Content-Type: text/html
Date: Fri, 11 Jun 2021 22:29:27 GMT
ETag: "38-5c48246130f00...
                               {[Keep-Alive, timeout=5, max=100], [Connection, Keep-Alive], [Accept-Ranges, bytes], [Content-Length, 56]...}
  eaders
 Images
InputFields
 Links
                              mshtml.HTMLDocumentClass
56
   rsedHtml
```

Fig. 5. Creating new volume, and re-running docker run command

Fig. 6. File changes still seen even though stop apache command is used

4. Mounting host directories on containers

```
S C:\Users\whatanicedayiana\Documents\CoE197S\ME8_Containerization_and_Docker\5-volumes> pwd
 ath
  :\Users\whatanicedayiana\Documents\CoE197S\ME8_Containerization_and_Docker\5-volumes
 PS C:\Users\whatanicedayiana\Documents\CoE1975\ME8_Containerization_and_Docker\5-volumes> <mark>docker</mark> run --rm -d --name apache -p 80:80 -v C:\Users\whatanic
edayiana\Documents\CoE1975\ME8_Containerization_and_Docker\5-volumes:/usr/local/apache2/htdocs/ httpd:2.4
355ff6flbd564e62aec02c99972069c69b948d34b541873f3785b7284eeb72d
PS C:\Users\whatanicedayiana\Documents\CoE1975\ME8_Containerization_and_Docker\5-volumes> curl localhost
 StatusCode : 200
StatusDescription : OK
  ontent
                             : HTTP/1.1 200 OK
Keep-Alive: timeout=5, max=100
Connection: Keep-Alive
Accept-Ranges: bytes
Content-Length: 56
Content-Type: text/html
Date: Fri, 11 Jun 2021 22:40:49 GMT
ETag: "38-5c482461bc0fd...
  lawContent
                              : {}
: {}
: {| Content-Length, 56]...}
: {| Exerp-Alive, timeout=5, max=100], [Connection, Keep-Alive], [Accept-Ranges, bytes], [Content-Length, 56]...}
: {}
  orms
leaders
Images
InputFields
Links
  arsedHtml : mshtml.HTMLDocumentClass
awContentLength : 56
PS C:\Users\whatanicedayiana\Documents\CoE197S\ME8_Containerization_and_Docker\5-volumes> <mark>cur</mark>l localhost
StatusDescription : OK

Content : <html><body><h1>It works very very very very well in Docker!</h1></body></html>
                             : HTTP/1.1 200 OK
Accept-Ranges: bytes
Content-Length: 86
Content-Type: text/html
Date: Fri, 11 Jun 2021 22:41:53 GMT
ETag: "56-5c4853621f254"
Last-Modified: Fri, 11 Jun 2021 22:41:41 GMT
 RawContent
  orms
leaders
                                  {} {{Accept-Ranges, bytes}, [Content-Length, 86], [Content-Type, text/html], [Date, Fri, 11 Jun 2021 22:41:53 GMT]...} {} {}
  inks
  arsedHtml
awContentLength
                               : mshtml.HTMLDocumentClass
: 86
```

Fig. 7. Mounting local directory onto containers – when index.html is modified, file changes take place immediately

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```
PS C:\Users\whatanicedayiana\Documents\CoE1975\ME8_Containerization_and_Docker\5-volumes> <mark>docker</mark> stop apache
apache
PS C:\Users\whatanicedayiana\Documents\CoE197S\ME8_Containerization_and_Docker\5-volumes> docker ps -a
PS C:\Users\whatanicedayiana\Documents\CoE197S\ME8_Containerization_and_Docker\5-volumes> docker ps -a
PS C:\Users\whatanicedayiana\Documents\CoE197S\ME8_Containerization_and_Docker\5-volumes>
PS C:\Users\whatanicedayiana\Documents\CoE197S\ME8_Containerization_and_Docker\5-volumes>
```